BUILDING A STATEWIDE INVENTORY OF LANDSLIDES IN ARIZONA

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Landslide risks in Arizona are based on a very limited dataset, indicative of our fragmentary and incomplete understanding of the nature and extent of landslide hazards in Arizona. To address this knowledge and data gap, the Arizona Geological Survey (AZGS) initiated a Landslides Hazards Program in 2014. Working with our partner agency, the Arizona Division of Emergency and Military Affairs (DEMA), we obtained funding from FEMA's Pre-Disaster Mitigation grant program to conduct the first comprehensive landslide inventory for the State of Arizona.

Our 1st task involved designing and building a GIS database capable of accommodating diverse landslide data from many sources. The Arizona Statewide Landslide Inventory Database (AzSLID) utilizes a comprehensive metadata structure, is versatile, and is easily updated as new mapping or data become available. The database is compatible and will be incorporated into the US Geoscience Information Network (USGIN), a cooperative linking data from the USGS and State Geological Surveys. The 2nd task involves compiling all documented landslides (including all forms of mass movements) from available maps and reports, map archives, and published journal articles. Mapped polygons are imported into the database and attributed according to failure type (e.g. earth slide, debris flow, rock fall), mechanism (e.g. rotational, translational, topple), source, and other useful metadata. Where available, volumetric data, repair cost, and other damages are also tallied. The 2nd task is ~75% complete and thus far AzSLID contains 4,420 landslide polygons covering 1366 km^2. We are adding unmapped landslides based on interpretation of high-quality aerial imagery, and will continue to update the database as new mapping and research identifies previously undocumented landslides. Our next task is to work with DEMA to engage stakeholders (local, county and tribal governments, and departments of transportation) to communicate what is known about Arizona landslides and to identify critical areas that warrant new detailed mapping. The data in AzSLID will be used to update the Landslide Profile in the upcoming 2018 State of Arizona Hazard Mitigation Plan, and it will be made available to all local, county and tribal governments to use in updating their hazard mitigation plans.